

Local Hazard Mitigation Plan ANNEX

City of Half Moon Bay

Introduction

The City of Half Moon Bay is a small city in San Mateo County, California. It was incorporated as a General Law City in 1959. It provides general administration, planning, engineering and public works services, a wastewater treatment plant, police department and parks and recreation services to a population of approximately 12,500. The City is 6.3 square miles in area and is approximately 7 miles long and a little less than a mile wide. It is located on the Pacific coast 25 miles south of San Francisco. The City's budget provides for 59 full-time employees. While the City provides local police services, fire services are supplied by a separate fire district. Sewer and water services are also supplied by separate districts.

The Planning Process

The process of preparing this plan was familiar to the City of Half Moon Bay. The City has a Safety Element as part of its General Plan. It was last updated in 1991 and includes a discussion of fire, earthquake, flooding, and landslide hazards. In addition, the City routinely enforces the requirements of the California Environmental Quality Act (CEQA) requirements (which, since 1988, have required mitigation for identified natural hazards) and the requirements of its Local Coastal Program. The City's effort has focused on building on these pre-existing programs and identifying gaps that may lead to disaster vulnerabilities in order to work on ways to address these risks through mitigation.

Many of the activities conducted by the City were fed into the planning process for the multi-jurisdictional plan. The City participated in various ABAG workshops and meetings, including the general "kick-off" meeting and other activities. In addition, the City has provided written and oral comments on the multi-jurisdictional plan. Finally, the City provided information on facilities that are viewed as "critical" to ABAG.

The City's Management Analyst coordinated the effort to gather and organize the information needed to complete the mitigation strategies. The Management Analyst identified which City personnel would be responsible for the preparation of each mitigation strategy type. Key City staff met to complete the identification and prioritization of the mitigation strategies appropriate for the City. Staff involved in this meeting included the City's Management Analyst, City Manager, Public Works Director, Chief Building

Official, Planning Director, and Police Commander. The City provided the opportunity for the public to comment on the DRAFT mitigation strategies selected by City staff at the City Council meeting on June 20, 2006. The resolution adopting the plan and strategies was on the City Council agenda for the meeting of February 20, 2007. It was adopted by a unanimous vote of the City Council. The mitigation strategies will become an implementation appendix to this Safety Element.

Hazard and Risk Assessment

The ABAG multi-jurisdictional Local Hazard Mitigation Plan, to which this is an Annex, lists nine hazards that impact the Bay Area, five related to earthquakes (faulting, shaking, earthquake-induced landslides, liquefaction, and tsunamis) and four related to weather (flooding, landslides, wildfires, and drought). These hazards also impact this community, except for surface faulting. Surface faulting is not a hazard in the City of Half Moon Bay because no active faults are located in the City.

While the City has undertaken a number of general hazard mapping activities since the first Safety Element was prepared by the City, all of these maps are less detailed and are not as current as those shown on the ABAG website at <http://quake.abag.ca.gov/mitigation/>. Note that both ABAG and the City use maps of tsunami evacuation planning areas developed by the California Office of Emergency Services and San Mateo County.

Information on disasters declared in San Mateo County is located at <http://quake.abag.ca.gov/mitigation/disaster-history.html>.

The City examined hazard exposure of City urban land based on information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the 2,378 urban acres in the City:

- ♦ **Earthquake faulting** – No active faults run within the city so rupture of a fault is not a direct concern.
- ♦ **Earthquake shaking** – 2,003 acres are in the highest two categories of shaking potential, in large part due to Half Moon Bay's proximity to the San Andreas Fault. However, a range of coastal mountains is between the fault and the City.
- ♦ **Earthquake-induced landslides** – the California Geological Survey has not completed the mapping of this hazard in the City of Half Moon Bay. However, because Half Moon Bay is relatively flat, this hazard is viewed as "lowest potential." Only 61 acres are in the

"few landslide" category. The rest of the City is not considered to be in a landslide area.

- ◆ Earthquake liquefaction – the California Geological Survey has not completed the mapping of this hazard in the City of Half Moon Bay. However, 1,380 acres are in areas of moderate, high, or very high liquefaction susceptibility.
- ◆ **Tsunamis** – The main tsunami danger in the City of Half Moon Bay is from major earthquakes within the Pacific Ocean rather than local earthquakes. The tsunami hazard presents a risk to structures and individuals within the area. Based on an approximate wave run-up height of 42 feet, there are approximately 540 existing dwelling units within the City of Half Moon Bay's run-up area. Important community services and facilities are not within the run-up area. Significant damage could occur within the areas indicated on the flood hazard (or should it be tsunami inundation maps).
- ◆ **Flooding** – The City examined the flood hazard exposure of the City of Half Moon Bay's urban land based on ABAG's website:
<http://quake.abag.ca.gov/cgi-bin/dbhazard/dbh3.pl>.
Of the 2,378 acres of urban land in the City:
 - 6 acres are in the 500-year flood plain.
 - There are approximately 24 dwelling units located within the designated flow zones.
 - There are no commercial areas in either the 500-year flood plain or the 100-year flood plain.
- ◆ **Landslides** – Only 61 acres are in existing landslide areas. All of the 61 acres are in the "Few Landslides" classification.
- ◆ **Wildfires** – 125 acres are subject to high or very high wildfire threat. No acres are subject to extreme wildfire threat. However, 1,804 acres are in wildland-urban interface threat areas.
- ◆ **Dam Inundation** – 247 acres are subject to dam inundation.
- ◆ **Drought** – all 4,100 acres are subject to drought.

The City also examined the hazard exposure of infrastructure based on the information that is available on ABAG's website at

<http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the 40 miles of roadway in the City:

- ◆ **Earthquake faulting** – No active faults run within the city so rupture of a fault is not a direct concern.
- ◆ **Earthquake shaking** – 56 miles (of a total of 58 miles) of roadway are in the second highest category of shaking potential.
- ◆ **Earthquake-induced landslides** – the California Geological Survey has not completed mapping of this hazard in the City of Half Moon Bay. However, this is unlikely to be an issue because only 3 miles of roads are in existing landslide areas.
- ◆ **Earthquake liquefaction** – 34 miles of roadway are in areas of moderate or high liquefaction susceptibility.
- ◆ **Tsunamis** – The main tsunami danger in the City is from major earthquakes within the Pacific Ocean rather than local earthquakes. Approximately 10% of the roads could be inundated by flooding caused by a tsunami. Significant damage could occur within the areas indicated on the tsunami inundation maps.
- ◆ **Flooding** – None of the city's 58 miles of roadway are in the 100-year flood plain or the 500-year flood plain.
- ◆ **Landslides** – no roads are existing landslide areas.
- ◆ **Wildfires** – while no miles of roadway are subject to high, very high, or extreme wildfire threat, 40 miles of roads are in wildland-urban interface threat areas.
- ◆ **Dam Inundation** – Only 3 miles of roadway are in an area subject to dam inundation.
- ◆ **Drought** – Drought is not a hazard for roadways.

Finally, the City examined the hazard exposure of critical health care facilities, schools, and city-owned buildings based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickcrit.html>. Of the critical facilities in the City:

- ◆ **Earthquake faulting** – No active faults run within the city so rupture of a fault is not a direct concern.

- ♦ **Earthquake shaking** – The City examined the earthquake shaking exposure of the City of Half Moon Bay's critical health care facilities, schools, and city-owned buildings based on information at <http://quake.abag.ca.gov/mitigation/pickcrit.html> (ABAG's website). All of the earthquake shaking exposures in the City are in the second highest potential classification. They include:
 - Two primary care clinics
 - All five public schools
 - 3 County-owned critical facilities
 - 12 City-owned critical facilities – including City Hall
 - 3 locally owned bridges and 2 state owned bridges.

- ♦ **Earthquake-induced landslides** – the California Geological Survey has not completed mapping of this hazard in the City of Half Moon Bay. However, this is unlikely to be an issue because no critical health care facilities, schools, or city-owned buildings are in existing landslide areas.

- ♦ **Earthquake liquefaction** – the critical health care facilities or city-owned facilities that are in areas of moderate or high, liquefaction susceptibility are:
 - One primary care clinic
 - 2 schools
 - 13 city or county owned critical facilities
 - 1 locally owned bridge and 2 state-owned bridges

- ♦ **Tsunamis** – The main tsunami danger in the City is from major earthquakes. All health facilities and schools are in the "low susceptibility" classification. All but one city owned facility is in the "low susceptibility" classification. Bridges are also in the "low susceptibility" classification.

- ♦ **Flooding** – There are no critical facilities in the 500-year or 100-year flood plain.

- ♦ **Landslides** – no critical health care facilities, schools, or city-owned facilities are in areas of existing landslides.

- ♦ **Wildfires** – One city-owned facility and one county-owned facility are in the "high threat" classification and one locally owned bridge is in the "very high threat" classification. There are two primary care clinics, three schools, eleven city-owned facilities and one

county-owned facility that are within the wildland-urban interface threat areas.

- ♦ **Dam Inundation** – There is 1 primary care clinic and 1 locally owned bridge in areas subject to dam inundation.
- ♦ **Drought** – Drought will not affect city buildings directly. In addition, the city does not operate a water-supply distribution system.

In spite of the areas of the City located in flood-prone areas, there are no repetitive loss properties in the City based on the information at <http://quake.abag.ca.gov/mitigation/pickflood.html>.

The City plans to work with ABAG during 2006-2007 to improve the risk assessment information being compiled by ABAG by providing information on unreinforced masonry buildings and soft-story apartments located in the City.

Drought, though a potential problem in the City, is not fully assessed. The City will work with ABAG and various water supply agencies on this issue.

The City plans to work with ABAG to develop specific information about the kind and level of damage to buildings, infrastructure, and critical facilities which might result from any of the hazards previously noted.

As these impacts are not fully developed, the City has reviewed the hazards identified and ranked the hazards based on past disasters and expected future impacts. The conclusion is that earthquakes (particularly shaking), flooding (mainly as a result of a tsunami) pose some risk for potential loss.

Mitigation Activities and Priorities

As a participant in the ABAG multi-jurisdictional planning process, the City of Half Moon Bay staff helped in the development and review of the comprehensive list of mitigation strategies in the overall multi-jurisdictional plan. The tentative list was reviewed and modified by the Police Commander, the Public Works Director, the Deputy City Manager, the Chief Building Official, and the Planning Director. The tentative decision on priority was made based on a variety of criteria, not simply on an economic cost-benefit analysis. These criteria include being technically and administratively feasible, politically acceptable, socially appropriate, legal, economically sound, and not harmful to the environment or our heritage.

Over time, the City of Half Moon Bay is committed to developing better hazard and risk information to use in making those trade-offs. The City of Half Moon Bay is not trying to create a disaster-proof region, but a disaster-resistant one. In addition, several of the strategies are existing City programs.

These draft priorities were submitted to the Acting City Manager for review. The draft priorities were then provided to the City Council on June 16, 2006. The public was provided with an opportunity to comment on the DRAFT priorities at the City Council meeting – June 20, 2006. The final strategies (as shown in the attached Table) will become an *Implementation Appendix* to the City's *Safety Element*.

In addition, the City examined the hazard exposure information to City-owned critical facilities supplied by ABAG. The City completed the retrofit of its City Hall in 1998.

The Plan Maintenance and Update Process

The City Manager's Office will ensure that **monitoring** of this Annex will occur. The plan will be monitored on an on-going basis. However, the major disasters affecting our community, legal changes, notices from ABAG as the lead agency in this process, and other triggers will be used. Finally, the Annex will be a discussion item on the agenda of the meeting of City department heads at least once a year in April. At that meeting, the department heads will focus on **evaluating** the Annex in light of technological and political changes during the past year or other significant events. This group will be responsible for determining if the plan should be updated.

The City of Half Moon Bay is committed to reviewing and updating this plan annex at least once every five years, as required by the Disaster Mitigation Act of 2000. The City Manager will contact ABAG four years after this plan is approved to ensure that ABAG plans to undertake the plan update process. If so, the City again plans to participate in the multi-jurisdictional plan. If ABAG is unwilling or unable to act as the lead agency in the multi-jurisdictional effort, other agencies will be contacted, including the County's Office of Emergency Services. Counties should then work together to identify another regional forum for developing a multi-jurisdictional plan.

The **public** will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the City will provide the opportunity for the public to comment

on the updates. A public notice will be posted prior to the meeting to announce the comment period and meeting logistics.